

TRANSDUCER-BASED SENSOR SYSTEM AND METHOD

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ABSTRACT

A system and method for performing rupture event scanning and other sensing operations on a sample. The method includes providing a transducer with an immobilized binding partner material and a sample material disposed thereon. The sample material is applied to the immobilized binding partner material so that, if components in the sample material have sufficient affinity for the immobilized binding partner material, bonds will form between at least some of such components and the immobilized binding partner material. The method further includes accelerating the transducer to induce bond breakage, where such accelerating is performed by applying a drive signal to the transducer. The drive signal includes a waveform having multiple frequency components that are pre-selected based on expected resonance behavior of the transducer. The method may also include analyzing an output response of the transducer in response to application of the drive signal.